

Lower Delaware Scenic and Recreational River Significant Resource Waters

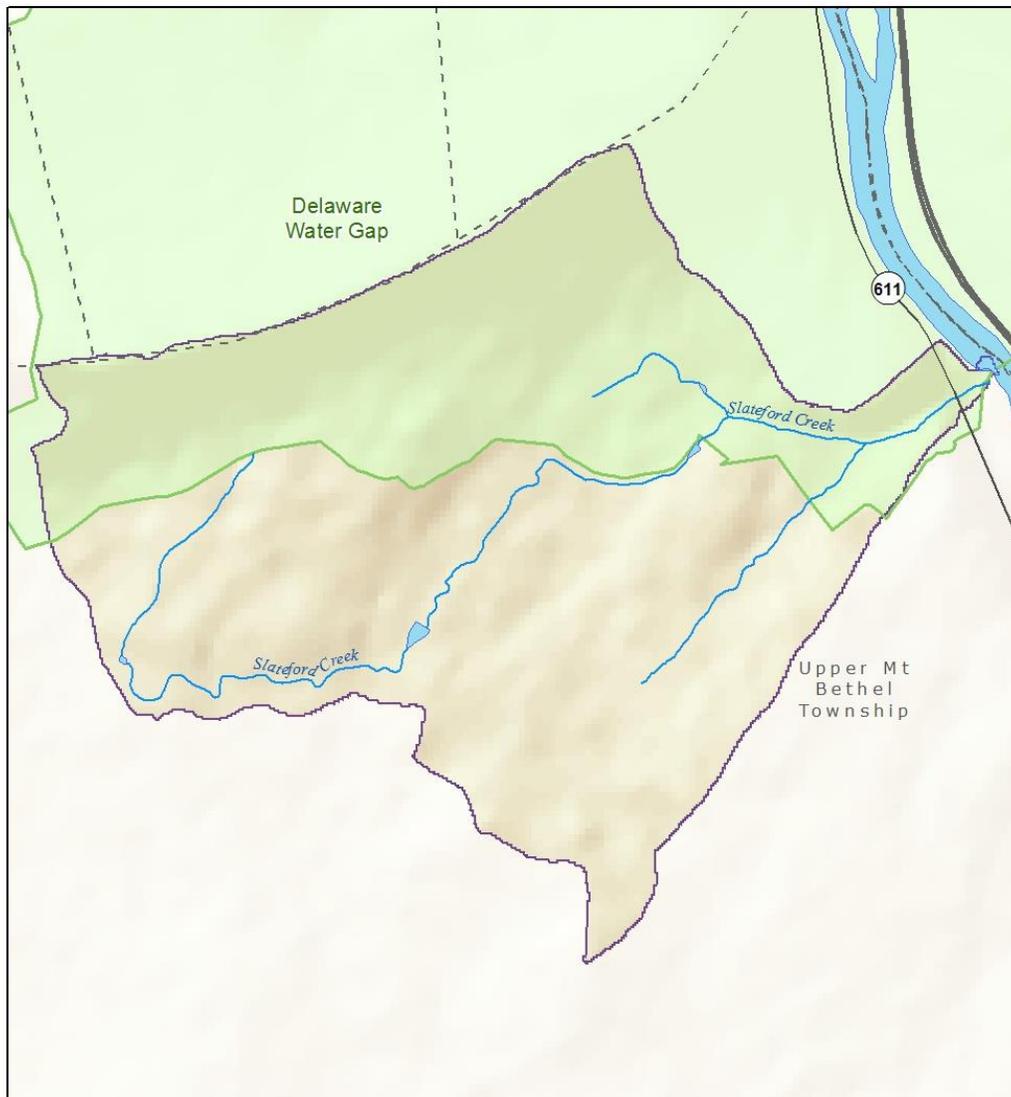
Appendix A:

New and Recommended Future Sites for Inclusion in DRBC Special Protection Waters Rules

Contents

2095 BCP Slateford Creek at National Park Drive, PA.....	2
1929 BCP Buckhorn Creek at Hutchinson Road (RESERVED).....	6
1891 ICP Delaware River at Sandts Eddy Access	9
1820 BCP Lopatcong Creek above Phillipsburg WWTP.....	13
1672 BCP Hakhokake Creek at Bridge St. (RESERVED).....	17
1495 BCP Alexauken Creek at Rt. 29 (RESERVED).....	20

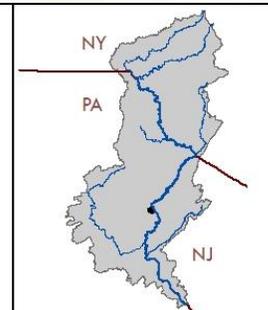
2095 BCP Slateford Creek at National Park Drive, PA



Slateford Creek

Drainage Area = 2.97 mi²

-  Sampling Location
-  Drainage Area
-  NPS Boundary



2095 BCP Slateford Creek at National Park Road

Northampton County, PA. Latitude 40.946735 Longitude -75.115074 by GPS NAD83 decimal degrees.

No monitoring by any other agencies

Population 2000 = 173 Population 2010 = 283 Change = +110

Drainage Area at site: 2.95 square miles, tributary to Delaware River Zone 1E

Site Specific EWQ defined by DRBC 2011-2013.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Classified by DRBC as Significant Resource Waters.

Nearest upstream Interstate Control Point: 2115 ICP Delaware River at I-80 Kittatinny Visitor Center

Nearest downstream Interstate Control Point: 2074 ICP Delaware River at Portland Foot Bridge

Known dischargers within watershed: Unknown.

Watershed is 89.2% forested; urban land cover is 0.1%. Watershed was 100% glaciated, and is not underlain by carbonate bedrock. Mean annual precipitation 47 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2013).

Flow Statistics (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
353	9.78	5.22	3.83	3.10	2.73	1.67	0.72	0.11

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	0.51
M30D2Y (ft ³ /s)	0.67
M7D10Y (ft ³ /s)	0.24
M30D10Y (ft ³ /s)	0.31
M90D10Y (ft ³ /s)	0.46

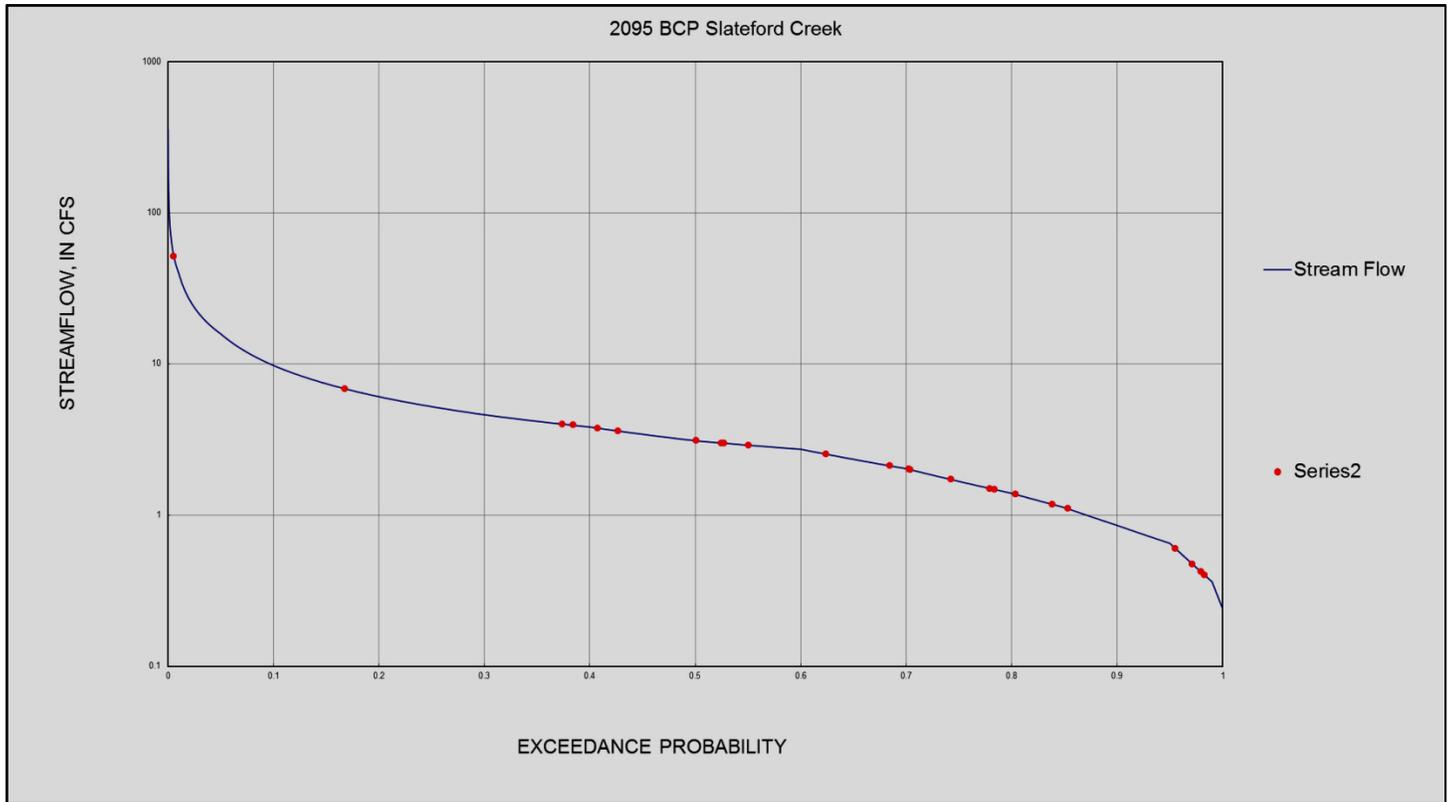
StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	5.34
QAH (ft ³ /s)	1.44
BF10YR (ft ³ /s)	2.57
BF25YR (ft ³ /s)	2.31
BF50YR (ft ³ /s)	2.16

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	153
PK5 (ft ³ /s)	274
PK10 (ft ³ /s)	373
PK50 (ft ³ /s)	641
PK100 (ft ³ /s)	778
PK500 (ft ³ /s)	1,160

Slateford Creek Flow Regime Represented in SRMP 2011-2013 Samples



The 30 samples taken by DRBC are plotted on the flow exceedance curve above.

Though high flow events are under-represented in our data, we were able to cover almost 100% of the flow regime. Low and normal flow conditions are the best represented by our water quality data. The flow exceedance curve above was prepared using the USGS BaSE model.

Slateford Creek is located at the southern terminus of the Delaware Water Gap National Recreation Area (shown in green on the map). DRBC took 30 samples from the National Park Drive road crossing for the May to September period of three years: 2011-2013. The watershed is only 2.97 square miles, and was chosen for EWQ establishment not because of the stream's potential influence upon the Delaware River, which is small, but because of pending development in the watershed and for the watershed's partial location within the Delaware Water Gap National Recreation Area.

The watershed is 89.1% forest, about 3.6% lakes and ponds, but only 0.07% urban land cover (USGS Stream Stats retrieval February 2013). Slateford Creek possesses excellent water quality. It is steeply sloped, and was never completely dry during the sampling period. Average annual flow is 5.34 cfs, and harmonic mean flow is 1.44 cfs (USGS BaSE model estimates).

Existing Water Quality: 2095 BCP Slateford Creek at National Park Drive, PA

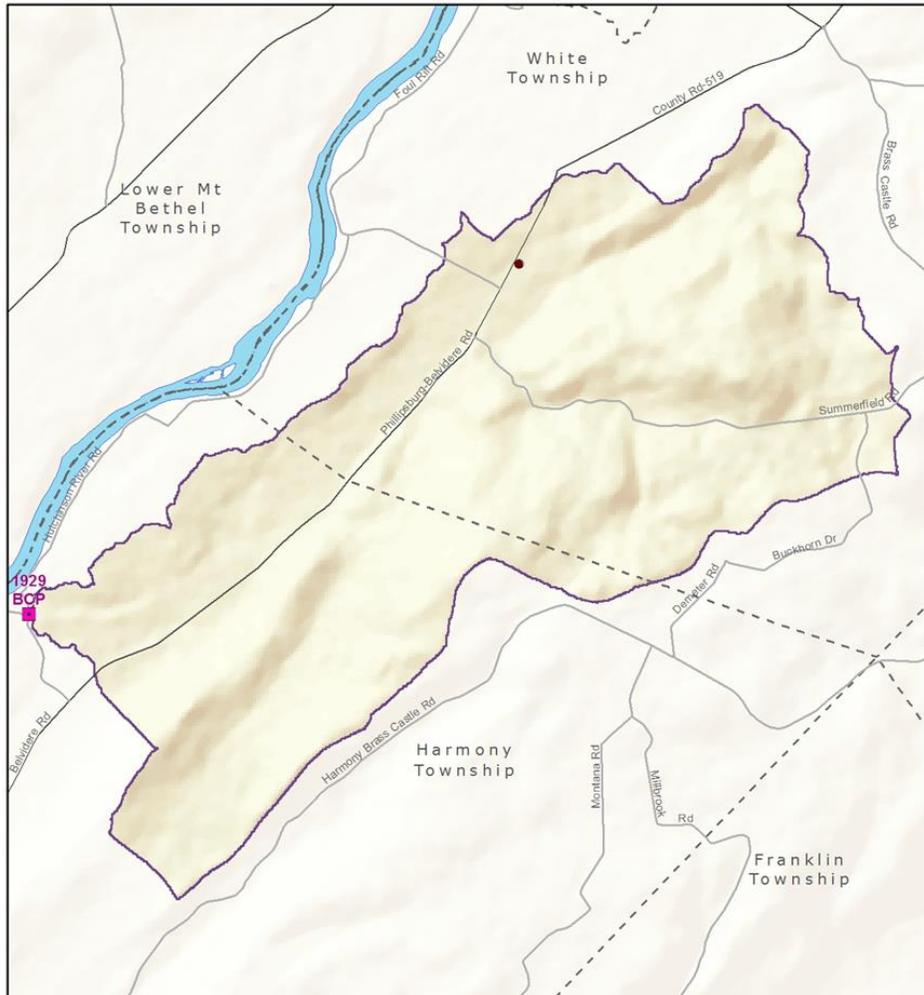
Parameter	N	median	L95CL	U95CL	Flow Relation	Period of Record (May-Sep data)
Alkalinity as CaCO ₃ , Total mg/l	30	51.5	45	62	Inverse	SRMP 2011-2013
Ammonia-Nitrogen as N, Total mg/l	30	<0.006	<0.006	<0.006	None	SRMP 2011-2013 (26/30 ND)
Chloride, Total mg/l	30	7.4	6.1	8.1	Inverse	SRMP 2011-2013
Dissolved Oxygen (DO) mg/l	28	9.40	8.83	9.71	None	SRMP 2011-2013 mid-day
Dissolved Oxygen Saturation %	28	96.7	95.5	99.2	None	SRMP 2011-2013 mid-day
Enterococcus #/100ml {1}	7	30	11	240	None	SRMP 2011 – insufficient data
Escherichia coli #/100ml {2}	8	16	6	180	Positive	SRMP 2011 – insufficient data
Fecal coliform #/100ml	8	17	1	270	Positive	SRMP 2011 – insufficient data
Hardness as CaCO ₃ , Total mg/l	30	78.3	67.4	83.2	Inverse	SRMP 2011-2013
Nitrate+Nitrite as N, Total mg/l	30	0.250	0.171	0.283	None	SRMP 2011-2013
Nitrogen as N, Total mg/l	30	0.398	0.365	0.440	None	SRMP 2011-2013
Nitrogen, Kjeldahl as N, Total mg/l	30	0.149	0.126	0.197	None	SRMP 2011-2013
pH units	28	7.74	7.68	7.85	None	SRMP 2011-2013 mid-day
Phosphate as P, Total mg/l	30	0.009	0.007	0.014	None	SRMP 2011-2013
Phosphorus as P, Total mg/l	30	0.013	0.010	0.017	Positive	SRMP 2011-2013
Specific Conductance µmhos/cm	28	180	153	204	Inverse	SRMP 2011-2013
Temperature, Water, degrees C	28	17.1	16.3	18.2	None	SRMP 2011-2013 mid-day
Total Dissolved Solids (TDS) mg/l	30	105	89	112	Inverse	SRMP 2011-2013
Total Suspended Solids (TSS) mg/l	30	2.0	1.0	3.3	None	SRMP 2011-2013
Turbidity NTU	47	1.56	1.25	2.20	Positive	SRMP 2011-2013

Two-tailed 95% (Lower and Upper) confidence limits were used for these EWQ targets

Note: All data are May to September season. Additional data are available for the October to April “non-seasonal” period, but data are insufficient in number for establishment of site-specific existing water quality targets.

ND = non-detect

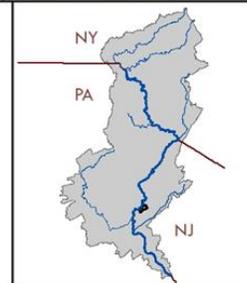
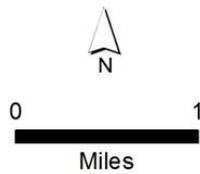
1929 BCP Buckhorn Creek at Hutchinson Road (RESERVED)



Buckhorn Creek

Drainage Area = 8.52 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- Drainage Area



1929 BCP Buckhorn Creek at Hutchinson Road (RESERVED)

Warren County, NJ. Latitude 40.771667 Longitude -75.130806 by GPS NAD83 decimal degrees.

NJDEP Site No. 01446568

Population 2000 = Population 2010 = Change =

Drainage Area: 11.8 square miles, tributary to Delaware River Zone 1D

Site Specific EWQ undefined. NJDEP data available; high-quality stream; recommended for confirmatory monitoring and establishment of EWQ.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Classified by DRBC as Significant Resource Waters.

Nearest upstream Interstate Control Point: 1978 ICP Delaware River at Belvidere

Nearest downstream Interstate Control Point: 1891 ICP Delaware River at Sandts Eddy Access

Known dischargers within watershed: Undefined.

Watershed is 55.1% forested; urban land cover is 0.75%. Watershed was not glaciated, and is 39.1% underlain by carbonate bedrock. Mean annual precipitation 46.9 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
935	34.1	21.1	15.7	12.8	12.2	8.48	4.97	1.91

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	5.27
M30D2Y (ft ³ /s)	5.96
M7D10Y (ft ³ /s)	3.51
M30D10Y (ft ³ /s)	3.83
M90D10Y (ft ³ /s)	4.31

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	19.2
QAH (ft ³ /s)	11.0
BF10YR (ft ³ /s)	10.6
BF25YR (ft ³ /s)	9.42
BF50YR (ft ³ /s)	8.74

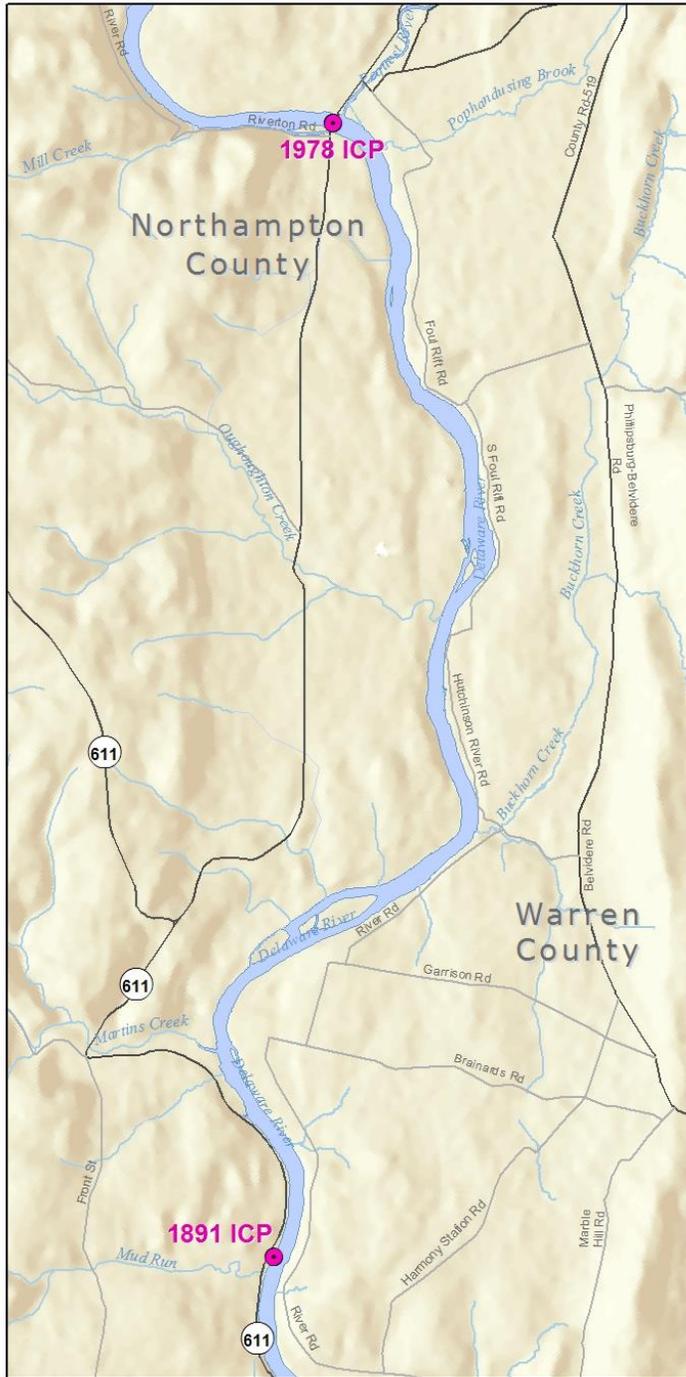
StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	543
PK5 (ft ³ /s)	944
PK10 (ft ³ /s)	1,270
PK50 (ft ³ /s)	2,130
PK100 (ft ³ /s)	2,560
PK500 (ft ³ /s)	3,760

Existing Water Quality: 1929 BCP Buckhorn Creek at Hutchinson Road (RESERVED)

Placeholder for Existing Water Quality Table

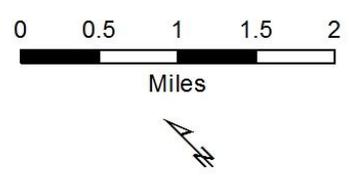
1891 ICP Delaware River at Sandts Eddy Access



1891 ICP
Delaware River at Sandt's Eddy Access



- Sampling Location
- - - County Boundary



1891 ICP Delaware River at Sandts Eddy Access

Latitude 40.758252 Longitude -75.187719 by GPS NAD83 decimal degrees.

No USGS or State monitoring sites nearby.

Drainage Area: 4,610 square miles, Delaware River Zone 1D

Site Specific EWQ defined 2009-2013 by the DRBC/NPS Scenic Rivers Monitoring Program.

This site is located in the Lower Delaware Scenic and Recreational River.

Classified by DRBC as Significant Resource Waters

Nearest upstream Interstate Control Point: 1978 ICP Delaware River at Belvidere

Nearest downstream Interstate Control Point: 1838 ICP Delaware River at Easton

Known dischargers within watershed: Undefined

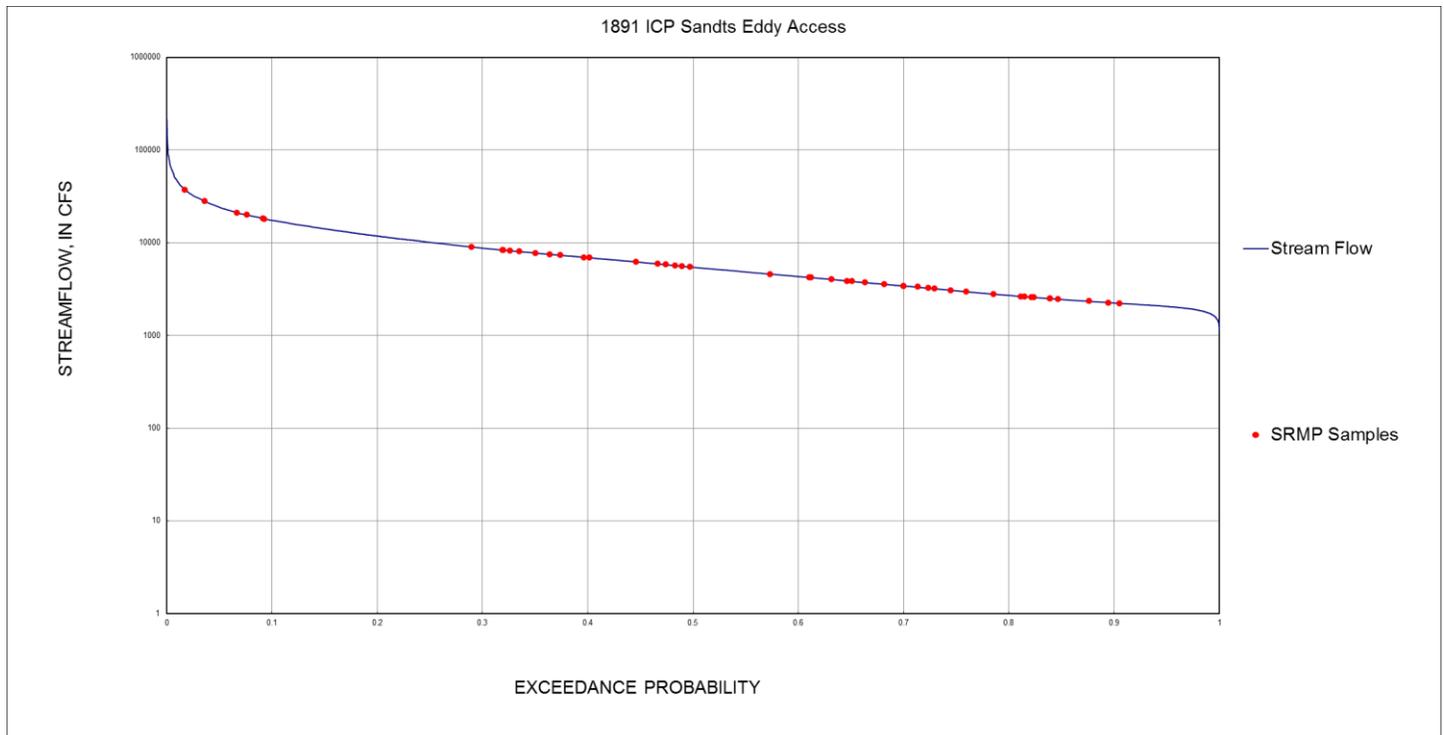
Tributaries to upstream reach: Major tributaries 1978 BCP Pequest River, NJ; 1907 BCP Martins Creek, PA; small tributaries 197.5 Pophandusing Brook, NJ; , 194.1 Oughoughton Creek, PA; 1929 BCP Buckhorn Creek, NJ.

No Stream Stats web site data available.

Flow Statistics Associated with Water Quality Samples (calculated by drainage area weighting from USGS gage data):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
214,500	17,400	10,100	6,920	5,430	4,320	3,030	2,240	1,150

1891 ICP Delaware River at Sandts Eddy SRMP Samples vs. Flow Exceedance Curve



For commonly sampled parameters (up to 48 samples taken), the SRMP data cover about 85% of the flow regime. Flow of the Delaware River is controlled, so extreme low flow conditions (>90% exceedance) are never encountered. High flow conditions (<30% exceedance) are not well represented by these water quality data. Some parameters such as bacteria (enterococcus, E. coli and fecal coliform) were not sampled every year and were not as representative of the full range of flow conditions. See discussions of individual parameters below.

The drainage area above Sandts Eddy access is about 4610 square miles, and median flow is about 7000 cfs. The median flow among SRMP samples is about 5430 cfs, so these water quality data best represent low to normal flow conditions.

This monitoring location was added to the monitoring program because we needed a site that is located between two major influential tributaries – Pequest River and Bushkill Creek. Prior to establishment of the Sandts Eddy site, there was a 14-mile unmonitored gap between SRMP sites at Belvidere and Easton, with multiple tributaries contributing to the reach. With the Sandts Eddy site it is now easier to account the effects of each tributary upon the Delaware River. Under low and normal flow, center-channel grab samples are collected. At high flow, samples are collected near the Pennsylvania shore.

Existing Water Quality: 1891 ICP Delaware River at Sandts Eddy Access

Parameter	N	median	L95CL	U95CL	Flow Relation	Period of Record (May-Sep data)
Alkalinity as CaCO ₃ , Total mg/l	49	36.1	33.1	38.1	None	2009-2013 SRMP
Aluminum, Dissolved mg/l	14	0.006	0.005	0.009	None	2009-2010 SRMP archived*
Ammonia-Nitrogen as N, Total mg/l	47	0.009	0.006	0.011	None	2009-2013 SRMP (14 non-detect)
Barium, Dissolved mg/l	14	0.017	0.012	0.023	None	2009-2010 SRMP archived*
Calcium, Dissolved mg/l	14	8.66	7.18	9.77	None	2009-2010 SRMP archived*
Chloride, Total mg/l	49	16.8	15.8	17.2	Inverse	2009-2013 SRMP
Dissolved Oxygen (DO) mg/l	47	9.35	8.85	9.55	None	2009-2013 SRMP mid-day
Dissolved Oxygen Saturation %	46	106.8	100.5	109.8	None	2009-2013 SRMP mid-day
Enterococcus #/100ml {1}	28	47	27	90	None	2009-2011 SRMP
Escherichia coli #/100ml	29	21	14	50	Positive	2009-2011 SRMP
Fecal coliform #/100ml	29	29	20	50	Positive	2009-2011 SRMP
Hardness as CaCO ₃ , Total mg/l	49	52	48.8	55	None	2009-2013 SRMP
Iron, Dissolved µg/l	14	3.8	2.0	5.8	Positive	2009-2010 SRMP archived*
Magnesium, Dissolved mg/l	14	3.04	1.89	3.55	Inverse	2009-2010 SRMP archived*
Manganese, Dissolved µg/l	14	2.6	1.4	4.5	Positive	2009-2010 SRMP archived*
Nitrate + Nitrite as N, Total mg/l	49	0.323	0.286	0.429	None	2009-2013 SRMP
Nitrogen, Kjeldahl as N, Total mg/l	49	0.229	0.217	0.251	None	2009-2013 SRMP
Nitrogen as N, Total mg/l	49	0.605	0.521	0.680	None	2009-2013 SRMP
Orthophosphate as P, Total mg/l	49	0.018	0.016	0.021	None	2009-2013 SRMP
pH units	47	7.96	7.75	8.20	Inverse	2009-2013 SRMP mid-day
Phosphorus as P, Total mg/l	49	0.028	0.024	0.031	None	2009-2013 SRMP
Potassium, Dissolved mg/l	14	0.95	0.70	1.10	Inverse	2009-2010 SRMP archived*
Sodium, Dissolved mg/l	14	8.79	6.79	9.29	Inverse	2009-2010 SRMP archived*
Specific Conductance µmho/cm	47	166	159	172	Inverse	2009-2013 SRMP mid-day
Strontium, Dissolved mg/l	14	0.045	0.035	0.05	Inverse	2009-2010 SRMP archived*
Sulfate as SO ₄ , Total mg/l	14	9.39	6.67	11.30	Inverse	2009-2010 SRMP archived*
Temperature, Water, degrees C	47	21.4	20.6	22.5	None	2009-2013 SRMP mid-day
Total Dissolved Solids (TDS) mg/l	49	83	81	87	None	2009-2013 SRMP
Total Suspended Solids (TSS) mg/l	49	1.8	1.5	3.0	Positive	2009-2013 SRMP
Turbidity NTU	70	1.10	0.99	1.38	Positive	2009-2013 SRMP

Two-tailed 95% lower (L95CL) and upper (U95CL) confidence limits were used for these EWQ targets

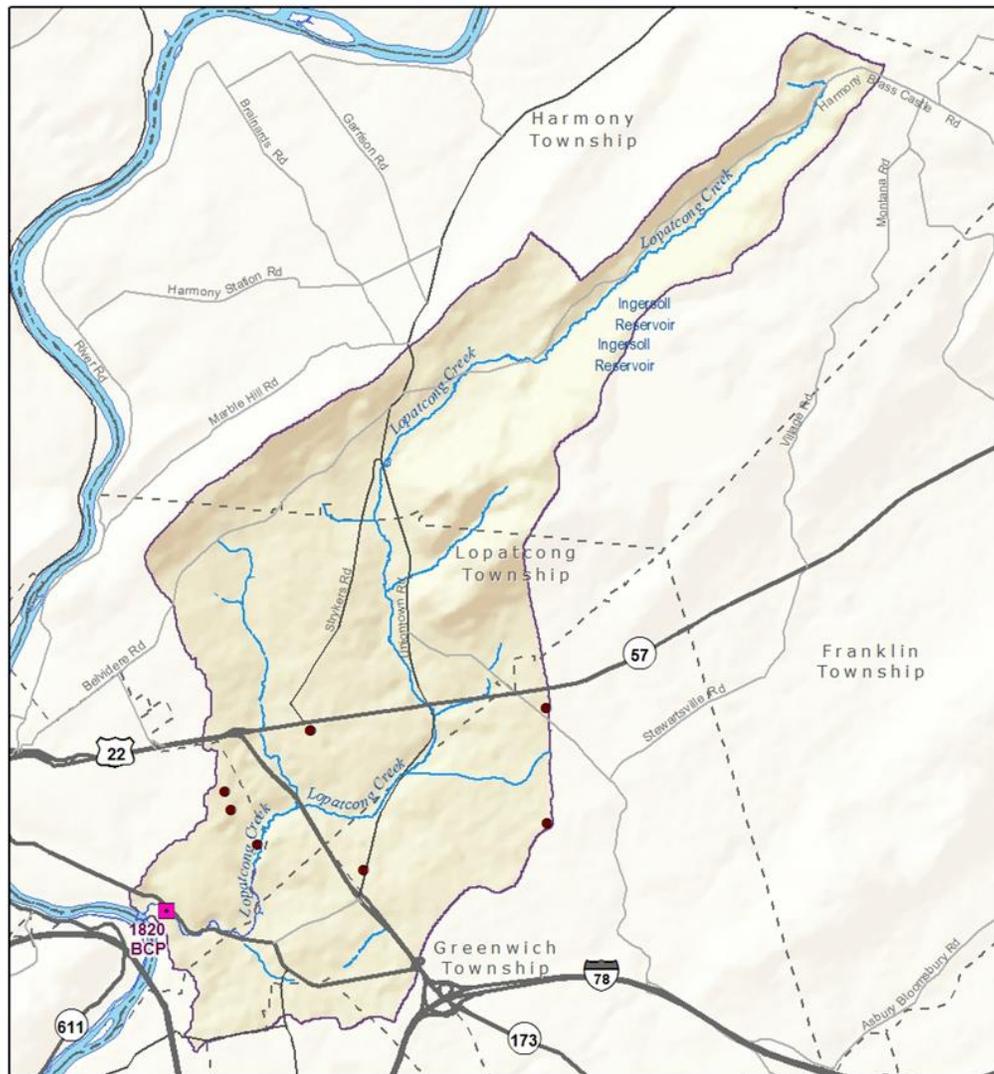
Note: All data are May to September season.

Note: Parameters denoted “archived” were 2009-2010 frozen samples analyzed in 2011 in anticipation of establishing background water quality conditions prior to natural gas development.

*Insufficient number of data to establish Existing Water Quality.

{1}: Median enterococcus concentrations exceed outdated NJ freshwater criterion.

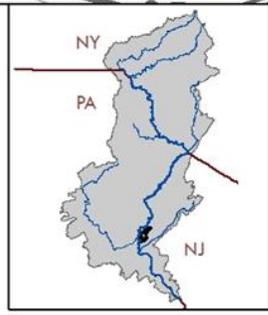
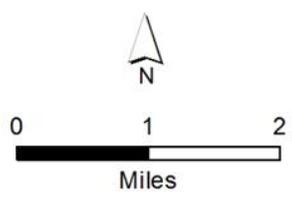
1820 BCP Lopatcong Creek above Phillipsburg WWTP



Lopatcong Creek

Drainage Area = 14.89 mi²

- Sampling Location
- NPDES
- Drainage Area



1820 BCP Lopatcong Creek above Phillipsburg WWTP

Warren County, NJ. Latitude 40.67949 Longitude -75.17499 by GPS NAD83 decimal degrees.

USGS Sites 01455100, 01455099; NJDEP Site No. 01455099

Population 2000 = 11,262 Population 2010 = 14,540 Change = +3,278

Drainage Area at site: 14.7 square miles, tributary to Delaware River Zone 1E

Site Specific EWQ defined by the DRBC/NPS Scenic Rivers Monitoring Program 2009-2013; with additional USGS and NJDEP data from various time periods.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Classified by DRBC as Significant Resource Waters.

Nearest upstream Interstate Control Point: 1838 ICP Delaware River at Easton

Nearest downstream Interstate Control Point: 1748 ICP Delaware River at Riegelsville

Known dischargers within watershed: Some, undefined. For total Lopatcong Creek effect upon the Delaware River, add loadings produced by Phillipsburg WWTP, located downstream of the monitoring site.

Watershed is 32.8% forested; urban land cover is 17%. Watershed was not glaciated, and is 63% underlain by carbonate bedrock. Mean annual precipitation 45.5 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
975	36.6	23.1	17.7	14.3	13.7	10.5	7.36	2.18

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	12.2
M30D2Y (ft ³ /s)	12.8
M7D10Y (ft ³ /s)	9.56
M30D10Y (ft ³ /s)	9.65
M90D10Y (ft ³ /s)	9.94

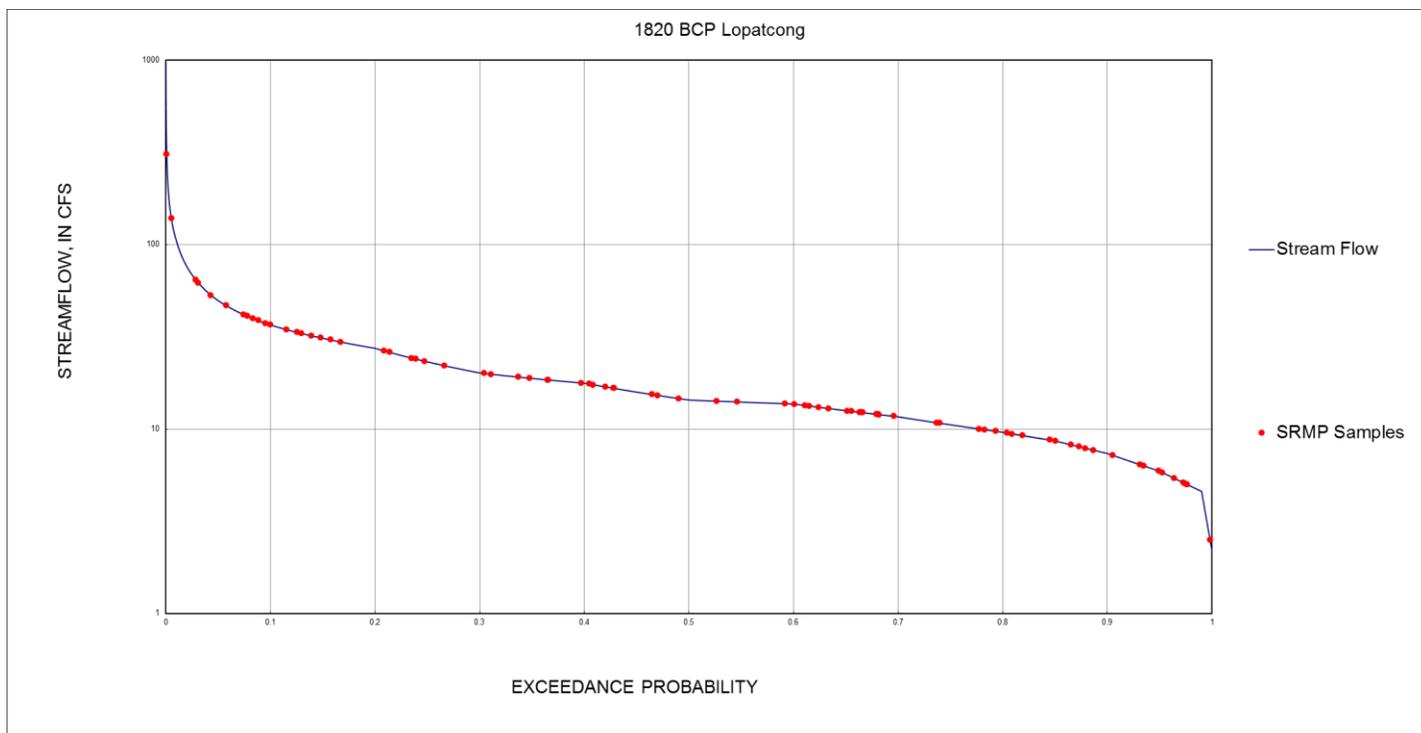
StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	22.2
QAH (ft ³ /s)	18.2
BF10YR (ft ³ /s)	12.4
BF25YR (ft ³ /s)	11.0
BF50YR (ft ³ /s)	10.2

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	707
PK5 (ft ³ /s)	1,220
PK10 (ft ³ /s)	1,630
PK50 (ft ³ /s)	2,720
PK100 (ft ³ /s)	3,260
PK500 (ft ³ /s)	4,750

1820 BCP Lopatcong Creek SRMP Samples vs. Flow Exceedance Curve



For commonly sampled parameters (up to 82 samples taken), the SRMP data cover almost 100% of Lopatcong Creek’s flow regime. However, some parameters such as bacteria (enterococcus, E. coli and fecal coliform) were not sampled every year and were not so representative of the full range of flow conditions. See discussions of individual parameters below.

According to the USGS Stream Stats website (accessed February 2013), the 14.9 square mile Lopatcong Creek watershed is 32.8% forest, 17% urban land cover, and 63% underlain by carbonate bedrock. The watershed was not affected by glacial activity. The watershed was chosen for establishment of Existing Water Quality because of discharge permit activity, and the watershed’s high urban land cover as well as high limestone content. All of these make Lopatcong Creek water quality unlike other Lower Delaware tributaries.

The monitoring location is upstream of the City of Phillipsburg’s wastewater treatment facility outfall that is located on Lopatcong Creek very close to its confluence with the Delaware River. It proved difficult to access the creek downstream of the treatment plant. As a result, the treatment plant effluent must be balanced with these water quality data in order to determine the effects of Lopatcong Creek upon the downstream portion of the Delaware River.

Existing Water Quality: 1820 BCP Lopatcong Creek above WWTP, NJ

Parameter	N	median	L95CL	U95CL	Flow Relation	Period of Record (May-Sep data)
Alkalinity as CaCO ₃ , Total mg/l	74	150	140	156	None	1980-2000 USGS; 2009-2013 SRMP
Ammonia-Nitrogen as N, Total mg/l	58	<0.006	<0.006	0.007	None	1999-2013 SRMP (50 non-detect)
Chloride, Total mg/l	61	36.8	36.0	37.1	None	2000, 2009-2013 SRMP
Dissolved Oxygen (DO) mg/l	57	10.04	9.80	10.26	None	2000, 2009-2013 SRMP
Dissolved Oxygen Saturation %	61	97.5	96.3	100.3	None	1999-2000, 2009-2013 SRMP
Enterococcus #/100ml {1}	40	195	140	340	None	1999-2000, 2009-2011 SRMP
Escherichia coli #/100ml {2}	31	270	170	370	None	2009-2011 SRMP
Fecal coliform #/100ml	32	240	180	330	None	2009-2011 SRMP
Hardness as CaCO ₃ , Total mg/l	61	214	202	222	None	2000, 2009-2013 SRMP
Nitrate + Nitrite as N, Total mg/l	54	4.43	4.23	4.65	None	2009-2013 SRMP
Nitrogen as N, Total mg/l	53	4.47	4.31	4.79	Inverse	2009-2013 SRMP
Nitrogen, Kjeldahl as N, Total mg/l	60	0.100	0.097	0.133	None	2000, 2009-2013 SRMP
Orthophosphate as P, Total mg/l	54	0.005	0.003	0.008	None	2000, 2009-13 SRMP (16 non-detect)
pH units	61	7.90	7.82	7.96	None	1999-2000, 2009-2013 SRMP
Phosphorus as P, Total mg/l	58	0.014	0.012	0.017	None	2000, 2009-2013 SRMP
Specific Conductance µmho/cm	61	499	454	516	None	1999-2000, 2009-2013 SRMP
Temperature, Water, degrees C	61	14.2	13.8	14.6	None	1999-2000, 2009-2013 SRMP
Total Dissolved Solids (TDS) mg/l	60	275	269	284	None	2000, 2009-2013 SRMP
Total Suspended Solids (TSS) mg/l	60	2.5	1.7	3.2	None	2000, 2009-2013 SRMP
Turbidity NTU	79	1.57	1.15	1.81	None	2000, 2009-2013 SRMP

Two-tailed 95% lower and upper confidence limits were used for these EWQ targets

Note: All data are May to September season. Additional data are available for the October to April “non-seasonal” period, but data are insufficient in number for establishment of site-specific existing water quality targets.

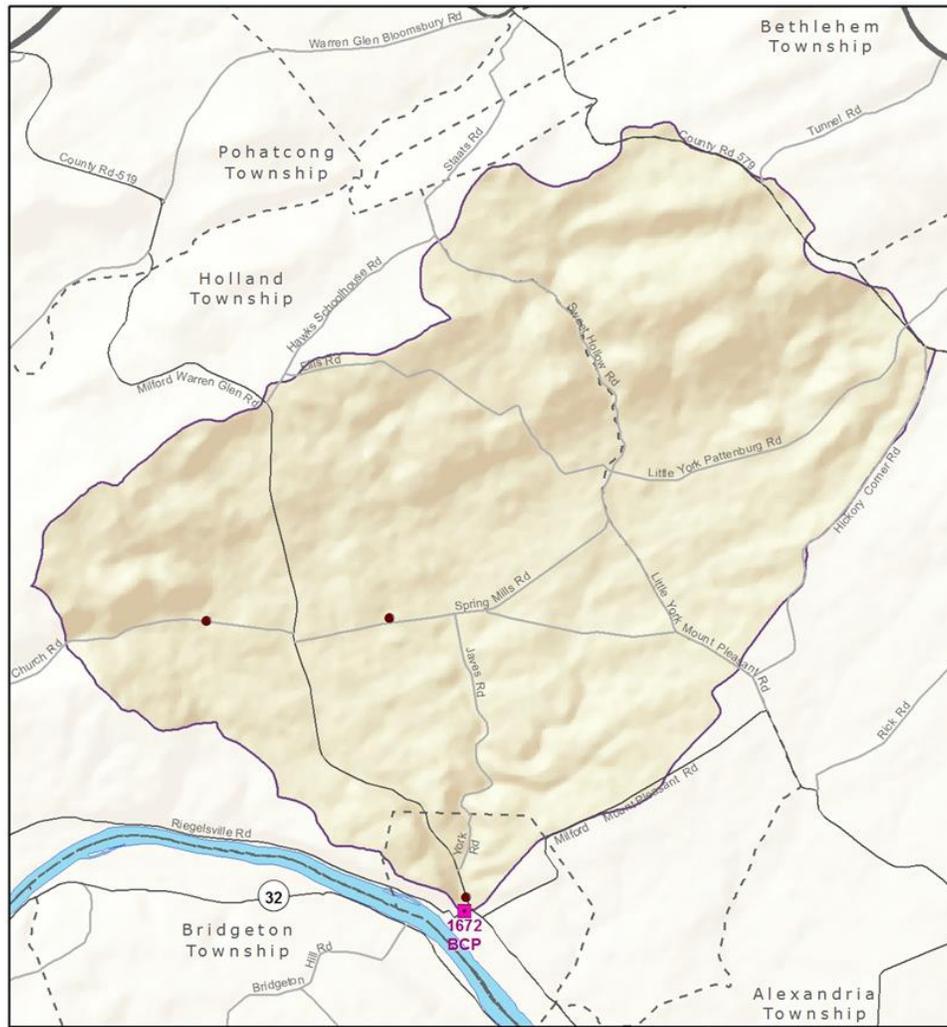
Note: Hydroqual study 2006-2007 results not included in this data set but were used in model for project development.

Note: Sample results do not incorporate City of Phillipsburg WWTP discharge, which is about 200 meters downstream of monitoring point and just upstream of Lopatcong Creek confluence with the Delaware River.

{1}: Enterococcus concentrations exceed outdated NJ freshwater criterion of 33 #/100 ml.

{2}: Escherichia coli concentrations exceed NJ freshwater criterion of 126 #/100 ml.

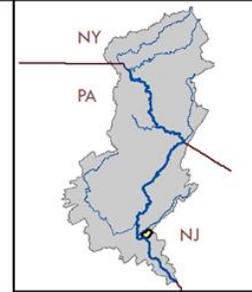
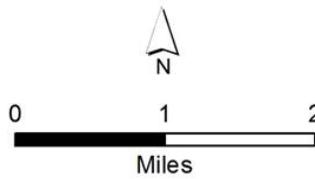
1672 BCP Hakiwokake Creek at Bridge St. (RESERVED)



Hakiwokake Creek

Drainage Area = 17.294955 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- Drainage Area



1672 BCP Hakhokake Creek at Bridge St. (RESERVED)

Hunterdon County, NJ. Latitude 40.568444 Longitude -75.095167 by GPS NAD83 decimal degrees.

USGS Site No. 01458100; NJDEP Site No. 01458100

Population 2000 = Population 2010 = Change =

Drainage Area at site: 17.5 square miles, tributary to Delaware River Zone 1E

Site Specific EWQ monitoring began 2014 by DRBC/NPS Scenic Rivers Monitoring Program; supplementing USGS/NJDEP long-term quarterly and special studies data.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Classified by DRBC as Significant Resource Waters.

Nearest upstream Interstate Control Point: 1677 ICP Delaware River at Upper Black Eddy Bridge

Nearest downstream Interstate Control Point: 1554 ICP Delaware River at Bulls Island Footbridge

Known dischargers within watershed: Some, undefined.

Watershed is 53.7% forested; urban land cover is 5.8%. Watershed was not glaciated, and is 1.5% underlain by carbonate bedrock. Mean annual precipitation 46.9 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
1,909	56.9	30.8	22.5	18.5	18.2	12.8	7.35	2.91

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	6.89
M30D2Y (ft ³ /s)	8.10
M7D10Y (ft ³ /s)	3.91
M30D10Y (ft ³ /s)	4.63
M90D10Y (ft ³ /s)	5.94

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	28.5
QAH (ft ³ /s)	8.84
BF10YR (ft ³ /s)	11.9
BF25YR (ft ³ /s)	10.6
BF50YR (ft ³ /s)	9.79

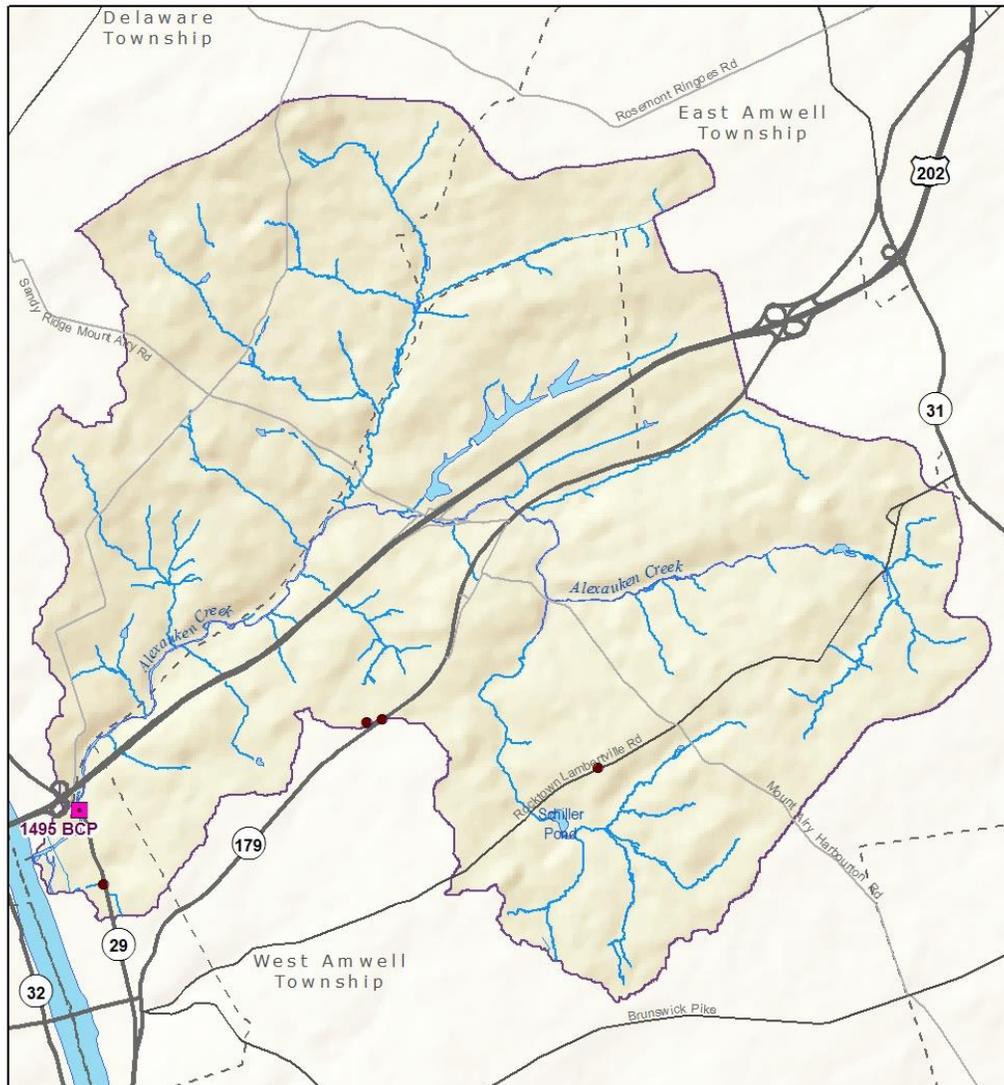
StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	763
PK5 (ft ³ /s)	1,310
PK10 (ft ³ /s)	1,750
PK50 (ft ³ /s)	2,930
PK100 (ft ³ /s)	3,530
PK500 (ft ³ /s)	5,170

Existing Water Quality: 1672 BCP Hakiwokake Creek at Bridge St. (RESERVED)

Placeholder for Existing Water Quality Table

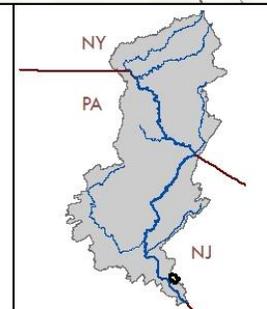
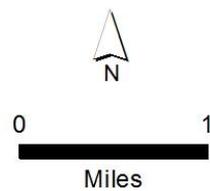
1495 BCP Alexauken Creek at Rt. 29 (RESERVED)



Alexauken Creek

Drainage Area = 15.45 mi²

- Sampling Location
- NPDES
- 🗺️ Drainage Area



1495 BCP Alexauken Creek at Rt. 29 (RESERVED)

Hunterdon County, NJ. Latitude 40.3806 Longitude -74.947961 by GPS NAD83 decimal degrees.

USGS Site No. 01461900; NJDEP Site No. 01461900

Population 2000 = 2,409 Population 2010 = 2,496 Change = +87

Drainage Area at site: 15.0 square miles, tributary to Delaware River Zone 1E

Site Specific EWQ monitoring began 2014 by DRBC/NPS Scenic Rivers Monitoring Program; supplementing USGS/NJDEP long-term quarterly and special studies data.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Classified by DRBC as Significant Resource Waters.

Nearest upstream Interstate Control Point: 1554 ICP Delaware River at Bulls Island Footbridge

Nearest downstream Interstate Control Point: 1487 ICP Delaware River at Lambertville

Known dischargers within watershed: Some, undefined.

Watershed is 44.3% forested; urban land cover is 1.56%. Watershed was not glaciated, and is not underlain by carbonate bedrock. Mean annual precipitation 45.1 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
1,750	45.3	21.9	16.7	14.1	11.8	6.92	3.28	0.54

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	1.93
M30D2Y (ft ³ /s)	2.70
M7D10Y (ft ³ /s)	0.81
M30D10Y (ft ³ /s)	1.17
M90D10Y (ft ³ /s)	2.07

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	20.6
QAH (ft ³ /s)	5.76
BF10YR (ft ³ /s)	8.43
BF25YR (ft ³ /s)	7.38
BF50YR (ft ³ /s)	6.79

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	670
PK5 (ft ³ /s)	1,160
PK10 (ft ³ /s)	1,550
PK50 (ft ³ /s)	2,600
PK100 (ft ³ /s)	3,130
PK500 (ft ³ /s)	4,590

Existing Water Quality: 1495 BCP Alexauken Creek at Rt. 29 (RESERVED)

Placeholder for Existing Water Quality Table